

application. No new matter has been added. Applicant respectfully submits that one skilled in the art, after reading the specification in light of the figures, would understand the present application. Accordingly, Applicant respectfully requests that the objection to the drawings under 37 CFR 1.83(a) be withdrawn.

For the reasons set forth above, Applicant requests that the objection to the drawings be withdrawn.

Although the Office Action suggests that Claims 1-28 are incomplete for omitting essential structural cooperative relationships of elements wherein such an omission amounts to a gap between necessary structural connections, Applicant respectfully submits that Claims 1-28 satisfy Section 112, second paragraph. However, in an effort to expedite the prosecution of this patent application, Applicant has added a new Figure 3, and a corresponding disclosure in the specification. mended Claims 4-5 and 19-20. Applicant respectfully submits that one skilled in the art, after reading the specification in light of the figures, would understand the present application. More specifically, Applicant respectfully submits that Claims 1-28 are definite and contain subject matter that is supported by the specification in such a way as to enable one skilled in the art to make and/or use the invention. Accordingly, Applicant respectfully requests that the rejection of Claims 1-28 under Section 112, second paragraph, be withdrawn.

For the reasons set forth above, Applicant respectfully requests that the rejection of Claims 1-28 under Section 112, second paragraph, be withdrawn.

The rejection of Claims 1-3 and 15-17 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,593,213 (Vesce et al.) , in view of U.S. Patent No. 5,739,594 (Sheppard et al.) and U.S. Patent No. 5,497,332 (Allen et al.) is respectfully traversed.

Vesce et al. describe a holdup circuit for a microprocessor power supply apparatus. The circuit maintains a 28 VDC voltage on a low voltage bus by supplying stored energy from a capacitor bank. A main power transformer receives primary input voltage from a pulse width modulator I.C. regulator and transforms the input voltage from the pulse width modulator to various supply voltages.

Sheppard et al. describe an automatic transfer switch that includes a plurality of mechanical switching components, a series of sensing relays, transformers, and actuators. A

Relay/transformer box includes a number of relays for energizing the actuator assembly. A controller includes a microprocessor that communicates with the actuator relays.

Allen et al. describe a monitor that is designed for use with any type ship power plant having a pair of three-phase AC power generators connected in parallel. The monitor includes an embedded microprocessor and microcontroller (P&C). Output control signals from the P&C used to turn on light-emitting diodes (LED), which provide visual indications of the tripped conditions of circuit breakers, or that setpoints have been reached. In addition, a control signal is used to turn on an LED which provides a visual indication that the monitor is running properly.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Vesce et al., in view of Sheppard et al., and Allen et al. More specifically, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Vesce et al. with Sheppard et al., or Allen et al. because there is no motivation to combine the references suggested in the art. Rather, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Only the conclusory statements that “[i]t would have been obvious to those of ordinary skill in the art at the time of the invention to modify Vesce et al. with the teachings of Sheppard et al. for the purpose of providing more specific annunciation of diagnostics than prior art controllers by utilizing a display and control routines which detect switch positions, malfunctions in the transfer switch, and misadjustment of the limit switches” and “[i]t would have been obvious to those of ordinary skill in the art at the time of the invention to modify Vesce et al. with the teachings of Allen et al. for the purpose of providing a digital monitor and controller for transducing and monitoring the performance of DC or AC generator units, as well as for controlling the loads connected thereto in small power plants” suggest combining the disclosures. More specifically, none of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in

combination, describe or suggest an automatic transfer switch controller that includes a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, and at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown. Specifically, the Examiner has not pointed to any prior art that teaches or suggests a reasonable expectation of success or motivation in combining the disclosures, other than Applicant's own teaching.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Vesce et al. are cited for teaching a holdup circuit for supplying 28 VDC to microprocessor power supply circuit, Sheppard et al. are cited for teaching an automatic transfer switch wherein the switch is actuated by an actuator controlled by relays, and Allen et al. are cited for teaching a shipboard transducing and monitoring system for two generators that operate in parallel. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on

a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 1-3, and 15-17 be withdrawn.

Further, and to the extent understood, none of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in combination, describe or suggest an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. Specifically, none of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in combination, describe or suggest an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. For at least the

reasons set forth above, Claim 1 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al.

Claims 2-3 depend from independent Claim 1. When the recitations of Claims 2-3 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2-3 likewise are patentable over Vesce et al. in view of Sheppard et al. and Allen et al.

Claim 15 recites an automatic transfer switch system including “an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in combination, describe or suggest an automatic transfer switch system including “an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Vesce et al., Sheppard et al., nor Allen et al., considered alone or in combination, describe or suggest an

automatic transfer switch controller including, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at said user interface. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al.

Claims 16-17 depend from independent Claim 15. When the recitations of Claims 16-17 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 16-17 likewise are patentable over Vesce et al. in view of Sheppard et al. and Allen et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 1-3 and 15-17 be withdrawn.

The rejection of Claims 4 and 18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,593,213 (Vesce et al.) , in view of U.S. Patent No. 5,739,594 (Sheppard et al.) and U.S. Patent No. 5,497,332 (Allen et al.) as applied to Claims 1 and 15, and further in view of U.S. Patent No. 6,181,038 (Kern et al.) is respectfully traversed.

Vesce et al., Sheppard et al., and Allen et al. are described above. Kern et al. describe a transfer mechanism 10 for transferring a supply of power between a generator 44 and a utility source 42. The transfer mechanism 10 includes a monitoring system 188 for monitoring the power supplied by utility source 42. The monitoring system 188 starts generator 44 in response to a power outage from the utility source 42 and stops generator 44 in response to a restoration of power from utility source 42. A power relay 77 has a utility input connectable to utility source 42, a generator input connectable to generator 44, an output connectable to a load, and a movable contact for selectively interconnecting one of the inputs to the output in response to a generation of power by generator 44.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Vesce et al., in view of Sheppard et al., and Allen et al, and further in view of Kern et al. More specifically,

as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Vesce et al., Sheppard et al., Allen et al., nor Kern et al. considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Vesce et al. with Sheppard et al., Allen et al., or Kern et al. because there is no motivation to combine the references suggested in the art. Rather, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vesce et al. as modified by Sheppard et al. and Allen et al. with the teachings of Kern et al. for the purpose of providing a transfer mechanism which allows various branch circuits of a home to be brought on line separately, rather than at once to allow for loads with large starting requirements to be brought up to speed before bringing the other circuit branches of the home on line thereby insuring the adequate power is provided by the generator to start such loads” suggest combining the disclosures. More specifically, none of Vesce et al., Sheppard et al., Allen et al., nor Kern et al. considered alone or in combination, describe or suggest an automatic transfer switch controller that includes a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, and at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991).

In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown. Specifically, the Examiner has not pointed to any prior art that teaches or suggests a reasonable expectation of success or motivation in combining the disclosures, other than Applicant's own teaching.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Vesce et al. are cited for teaching a holdup circuit for supplying 28 VDC to microprocessor power supply circuit, Sheppard et al. are cited for teaching an automatic transfer switch wherein the switch is actuated by an actuator controlled by relays, Allen et al. are cited for teaching a shipboard transducing and monitoring system for two generators that operate in parallel, and Kern et al. are cited for branch circuits of a home to be brought on line separately. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 4 and 18 be withdrawn.

Further, and to the extent understood, none of Vesce et al., Sheppard et al., Allen et al., nor Kern et al. considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and

frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Vesce et al., Sheppard et al., Allen et al. nor Kern et al., considered alone or in combination, describe or suggest an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al., nor Kern et al. considered alone or in combination, describe or suggest an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Kern et al.

Claim 4 depends from independent Claim 1. When the recitations of Claim 4 is considered in combination with the recitations of Claim 1, Applicant submits that dependent Claim 4 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Kern et al.

Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense

signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Vesce et al., Sheppard et al., Allen et al., nor Kern et al. considered alone or in combination, describe or suggest an automatic transfer switch system including “an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al. nor Kern et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at said user interface. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Kern et al.

Claim 18 depends from independent Claim 15. When the recitations of Claim 18 is considered in combination with the recitations of Claim 15, Applicant submits that dependent Claim 18 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Kern et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 4 and 18 be withdrawn.

The rejection of Claims 5 and 19 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,593,213 (Vesce et al.) , in view of U.S. Patent No. 5,739,594 (Sheppard et al.) and U.S. Patent No. 5,497,332 (Allen et al.) as applied to Claims 1 and 15, and further in view of U.S. Patent No. 5,703,748 (Fulks et al.) is respectfully traversed.

Vesce et al., Sheppard et al., and Allen et al. are described above. Fulks et al. describe a solenoid driver circuit that reduces the armature velocity and increases armature transit time of the solenoid that includes a frequency generator providing an output pulse signal, a ramp circuit receiving an input command and responsively providing a ramp signal, a frequency switching circuit coupled to the ramp circuit and frequency generator receiving the ramp and pulse signals and responsively providing a time varying pulse signal to a solenoid, wherein the time varying pulse signal has an initial duty cycle and then decreases with time, a dwell circuit, receiving the input command and responsive thereto, for a first time period allowing the frequency switching circuit to control the solenoid and then, after the first time period, providing an on signal to the solenoid, maintaining the solenoid in the on position. Notably, increasing the transit time of the solenoid armature may adversely impact the operation of an automatic transfer switch wherein the function of an automatic transfer switch is rapid changeover from one source to another.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Vesce et al., in view of Sheppard et al., and Allen et al, and further in view of Fulks et al. More specifically, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Vesce et al., Sheppard et al., Allen et al., nor Fulks et al. considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Vesce et al. with Sheppard et al., Allen et al., or Fulks et al. because there is no motivation to combine the references suggested in the art. Rather, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Only

the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vesce et al. as modified by Sheppard et al. and Allen et al. with the teachings of Fulks et al. for the purpose of providing a solenoid driver circuit that reduces the armature velocity and increases armature transit time of the solenoid while, at the same time ensuring high solenoid performance” suggests combining the disclosures. More specifically, none of Vesce et al., Sheppard et al., Allen et al., nor Fulks et al. considered alone or in combination, describe or suggest an automatic transfer switch controller that includes a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, and at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’ disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown. Specifically, the Examiner has not pointed to any prior art that teaches or suggests a reasonable expectation of success or motivation in combining the disclosures, other than Applicant’s own teaching.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection

is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Vesce et al. are cited for teaching a holdup circuit for supplying 28 VDC to microprocessor power supply circuit, Sheppard et al. are cited for teaching an automatic transfer switch wherein the switch is actuated by an actuator controlled by relays, Allen et al. are cited for teaching a shipboard transducing and monitoring system for two generators that operate in parallel, and Fulks et al. are cited for a solenoid driver circuit that reduces the armature velocity of the solenoid and increases the armature transit time. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 5 and 19 be withdrawn.

Further, and to the extent understood, none of Vesce et al., Sheppard et al., Allen et al., nor Fulks et al. considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Vesce et al., Sheppard et al., Allen et al. nor Fulks et al., considered alone or in combination, describe or suggest an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, and at least one LED indicator interfaced to the

microcontroller to indicate operator entry of instructions at the user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al., nor Fulks et al. considered alone or in combination, describe or suggest an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Fulks et al.

Claim 5 depends from independent Claim 1. When the recitations of Claim 4 is considered in combination with the recitations of Claim 1, Applicant submits that dependent Claim 4 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Fulks et al.

Claim 15 recites an automatic transfer switch system including “an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Vesce et al., Sheppard et al., Allen et al., nor Fulks et al. considered alone or in combination, describe or suggest an automatic transfer switch system including “an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit

to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al. nor Fulks et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at said user interface. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Fulks et al.

Claim 19 depends from independent Claim 15. When the recitations of Claim 19 is considered in combination with the recitations of Claim 15, Applicant submits that dependent Claim 19 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Fulks et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 5 and 19 be withdrawn.

The rejection of Claims 9-10 and 23-24 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,593,213 (Vesce et al.) , in view of U.S. Patent No. 5,739,594 (Sheppard et al.) and U.S. Patent No. 5,497,332 (Allen et al.) as applied to Claims 1 and 15, and further in view of Generac® Power Systems, Inc., "E" Control Panel Brochure is respectfully traversed.

Vesce et al., Sheppard et al., and Allen et al. are described above. Generac® Power Systems, Inc., "E" Control Panel Brochure describes a generator control panel including a display, a plurality of analog meters, a manual selector switch, a voltage adjust knob, and an emergency stop button on a panel front. The "E" control panel

includes an optional PC-based software that can interrogate the control panel to monitor the conditions of the inputs, the alarm messages, and the alarm log. Notably, the Generac® Power Systems, Inc., "E" Control Panel Brochure does not describe or suggest an embedded microcontroller, nor a set of dry contacts for starter motor control.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Vesce et al., in view of Sheppard et al., and Allen et al, and further in view of the Generac® Power Systems, Inc., "E" Control Panel Brochure. More specifically, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Vesce et al., Sheppard et al., Allen et al., nor the Generac® Power Systems, Inc., "E" Control Panel Brochure considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Vesce et al. with Sheppard et al., Allen et al., or the Generac® Power Systems, Inc., "E" Control Panel Brochure because there is no motivation to combine the references suggested in the art. Rather, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Only the conclusory statement that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vesce et al. as modified by Sheppard et al. and Allen et al. with the teachings of Generac® for the purpose of providing an economical control option that combines the advantages of digital technology with traditional analog meters for voltage, current, and frequency" suggests combining the disclosures. More specifically, none of Vesce et al., Sheppard et al., Allen et al., nor the Generac® Power Systems, Inc., "E" Control Panel Brochure considered alone or in combination, describe or suggest an automatic transfer switch controller that includes a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator

voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, and at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown. Specifically, the Examiner has not pointed to any prior art that teaches or suggests a reasonable expectation of success or motivation in combining the disclosures, other than Applicant's own teaching.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Vesce et al. are cited for teaching a holdup circuit for supplying 28 VDC to microprocessor power supply circuit, Sheppard et al. are cited for teaching an automatic transfer switch wherein the switch is actuated by an actuator controlled by relays, Allen et al. are cited for teaching a shipboard transducing and monitoring system for two generators that operate in parallel, and the Generac® Power Systems, Inc., "E" Control Panel Brochure is cited for providing an economical control option that combines the advantages of digital technology with traditional analog meters for voltage, current, and frequency. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this

reason alone, Applicant requests that the Section 103 rejection of Claims 9-10 and 23-24 be withdrawn.

Further, and to the extent understood, none of Vesce et al., Sheppard et al., Allen et al., nor the Generac® Power Systems, Inc., “E” Control Panel Brochure considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller that includes “a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Vesce et al., Sheppard et al., Allen et al. nor the Generac® Power Systems, Inc., “E” Control Panel Brochure, considered alone or in combination, describe or suggest an automatic transfer switch controller that includes “a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al., nor the Generac® Power Systems, Inc., “E” Control Panel Brochure considered alone or in combination, describe or suggest an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. For at least the reasons set forth above, Claim 1 is submitted to be

patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Generac® Power Systems, Inc., "E" Control Panel Brochure.

Claims 9-10 depend from independent Claim 1. When the recitations of Claims 9-10 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 9-10 likewise are patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Generac® Power Systems, Inc., "E" Control Panel Brochure.

Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Vesce et al., Sheppard et al., Allen et al., nor the Generac® Power Systems, Inc., "E" Control Panel Brochure considered alone or in combination, describe or suggest an automatic transfer switch system including "an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator

entry of instructions at said user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al. nor the Generac® Power Systems, Inc., “E” Control Panel Brochure, considered alone or in combination, describe or suggest an automatic transfer switch controller including, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at said user interface. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Generac® Power Systems, Inc., “E” Control Panel Brochure.

Claims 23-24 depend from independent Claim 15. When the recitations of Claims 23-24 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 23-24 likewise are patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Generac® Power Systems, Inc., “E” Control Panel Brochure.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 9-10 and 23-24 be withdrawn.

The rejection of Claims 12 and 26 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,593,213 (Vesce et al.) , in view of U.S. Patent No. 5,739,594 (Sheppard et al.) and U.S. Patent No. 5,497,332 (Allen et al.) as applied to Claims 1 and 15, and further in view of U.S. Patent No. 5,920,129 (Smith) is respectfully traversed.

Vesce et al., Sheppard et al., and Allen et al. are described above. Smith describes an uninterruptible power supply (UPS) for supplying DC power to a load that employs a prior art transfer switch, which is a break-before-make variety to prevent connecting an AC line and an AC generator together even for a short time period. Applicant respectfully disagrees with the assertion in the Office Action that a load shedding feature is equivalent to a break-before-make feature. A load shedding feature commonly refers to reducing the load on a bus to facilitate mitigating an undesirable transient such as a voltage collapse or underfrequency condition. In

contrast, a break-before-make feature refers to opening one sets of contacts before closing another. Notably, Smith does not describe or suggest a load shedding feature.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Vesce et al., in view of Sheppard et al., and Allen et al, and further in view of Smith. More specifically, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Vesce et al., Sheppard et al., Allen et al., nor Smith considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Vesce et al. with Sheppard et al., Allen et al., or Smith because there is no motivation to combine the references suggested in the art. Rather, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vesce et al. as modified by Sheppard et al. and Allen et al. with the teachings of Smith for the purpose of avoiding any potential surges that may occur as a result of two unsynchronized sources applying power to the load simultaneously” suggests combining the disclosures. More specifically, none of Vesce et al., Sheppard et al., Allen et al., nor Smith considered alone or in combination, describe or suggest an automatic transfer switch controller that includes a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, and at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte

Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown. Specifically, the Examiner has not pointed to any prior art that teaches or suggests a reasonable expectation of success or motivation in combining the disclosures, other than Applicant's own teaching.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Vesce et al. are cited for teaching a holdup circuit for supplying 28 VDC to microprocessor power supply circuit, Sheppard et al. are cited for teaching an automatic transfer switch wherein the switch is actuated by an actuator controlled by relays, Allen et al. are cited for teaching a shipboard transducing and monitoring system for two generators that operate in parallel, and Smith is cited for avoiding any potential surges that may occur as a result of two unsynchronized sources applying power to the load simultaneously. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 12 and 26 be withdrawn.

Further, and to the extent understood, none of Vesce et al., Sheppard et al., Allen et al., nor Smith considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller

that includes "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Vesce et al., Sheppard et al., Allen et al. nor Smith, considered alone or in combination, describe or suggest an automatic transfer switch controller that includes "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al., nor Smith considered alone or in combination, describe or suggest an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Smith.

Claim 12 depends from independent Claim 1. When the recitations of Claim 12 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claim 12 likewise are patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Smith.

Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator

power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Vesce et al., Sheppard et al., Allen et al., nor Smith considered alone or in combination, describe or suggest an automatic transfer switch system including "an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al. nor Smith, considered alone or in combination, describe or suggest an automatic transfer switch controller including, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at said user interface. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Smith.

Claim 26 depends from independent Claim 15. When the recitations of Claim 26 is considered in combination with the recitations of Claim 15, Applicant submits that dependent Claim 26 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of Smith.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 12 and 26 be withdrawn.

The rejection of Claims 13 and 27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,593,213 (Vesce et al.) , in view of U.S. Patent No. 5,739,594 (Sheppard et al.) and U.S. Patent No. 5,497,332 (Allen et al.) as applied to Claims 1 and 15, and further in view of the Murphy® Generator Control Panel MGC900 Series Brochure is respectfully traversed.

Vesce et al., Sheppard et al., and Allen et al. are described above. The Murphy® Generator Control Panel MGC900 Series Brochure describes a generator control panel that includes mechanical instruments for engine oil, coolant temperature, and hour, amp and volt meters, and a solid state generator controller that includes a control display module and a relay module. The panel also includes a cycle crank timer.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Vesce et al., in view of Sheppard et al., and Allen et al, and further in view of the Murphy® Generator Control Panel MGC900 Series Brochure More specifically, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Vesce et al., Sheppard et al., Allen et al., nor the Murphy® Generator Control Panel MGC900 Series Brochure considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Vesce et al. with Sheppard et al., Allen et al., or the Murphy® Generator Control Panel MGC900 Series Brochure because there is no motivation to

combine the references suggested in the art. Rather, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Only the conclusory statement that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vesce et al. as modified by Sheppard et al. and Allen et al. with the teachings of Murphy® for the purpose of providing economical engine/generator, manual or automatic start/stop control for applications required by NFPA-1 10 approvals." suggests combining the disclosures. More specifically, none of Vesce et al., Sheppard et al., Allen et al., nor the Murphy® Generator Control Panel MGC900 Series Brochure considered alone or in combination, describe or suggest an automatic transfer switch controller that includes a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, and at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown. Specifically, the Examiner has not pointed to any prior art that teaches or suggests a reasonable expectation of success or motivation in combining the disclosures, other than Applicant's own teaching.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a

given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Vesce et al. are cited for teaching a holdup circuit for supplying 28 VDC to microprocessor power supply circuit, Sheppard et al. are cited for teaching an automatic transfer switch wherein the switch is actuated by an actuator controlled by relays, Allen et al. are cited for teaching a shipboard transducing and monitoring system for two generators that operate in parallel, and the Murphy® Generator Control Panel MGC900 Series Brochure is cited for providing economical engine/generator, manual or automatic start/stop control for applications required by NFPA-1 10 approvals.. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 13 and 27 be withdrawn.

Further, and to the extent understood, none of Vesce et al., Sheppard et al., Allen et al., nor the Murphy® Generator Control Panel MGC900 Series Brochure considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller that includes “a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Vesce et al., Sheppard et al., Allen et al. nor the Murphy® Generator Control Panel MGC900 Series Brochure, considered alone or in combination, describe or suggest an automatic transfer switch controller that includes “a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning

circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al., nor the Murphy® Generator Control Panel MGC900 Series Brochure considered alone or in combination, describe or suggest an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, and at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at the user interface. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Murphy® Generator Control Panel MGC900 Series Brochure.

Claim 13 depends from independent Claim 1. When the recitations of Claim 13 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claim 13 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Murphy® Generator Control Panel MGC900 Series Brochure.

Claim 15 recites an automatic transfer switch system including “an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

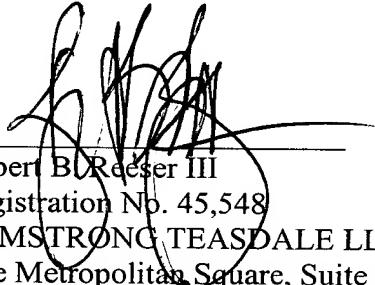
None of Vesce et al., Sheppard et al., Allen et al., nor the Murphy® Generator Control Panel MGC900 Series Brochure considered alone or in combination, describe or suggest an automatic transfer switch system including “an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to the microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Vesce et al., Sheppard et al., Allen et al. nor the Murphy® Generator Control Panel MGC900 Series Brochure, considered alone or in combination, describe or suggest an automatic transfer switch controller including, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, at least one LED indicator interfaced to the microcontroller to indicate operator entry of instructions at said user interface. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Murphy® Generator Control Panel MGC900 Series Brochure.

Claim 27 depends from independent Claim 15. When the recitations of Claim 27 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claim 27 likewise is patentable over Vesce et al. in view of Sheppard et al. and Allen et al. and further in view of the Murphy® Generator Control Panel MGC900 Series Brochure.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 13 and 27 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,


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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: AUTOMATIC TRANSFER SWITCH :
SYSTEMS AND CONTROLLERS :

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SUBMISSION OF MARKED-UP PARAGRAPHS

Commissioner for Patents
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Sir:

Below are marked up paragraphs in accordance with 37 C.F.R. Section 1.121(a)(1)(i).

IN THE SPECIFICATION:

In the section, BRIEF DESCRIPTION OF THE DRAWINGS, please add the following:

Figure 3 is a detailed block diagram of a portion of the automatic transfer switch controller shown in Figure 2.

Please insert the following into the DETAILED DESCRIPTION OF THE INVENTION at page 6, line 4:

Figure 3 is a detailed block diagram of a portion of the automatic transfer switch controller 40 shown in Figure 2. Components of automatic transfer switch controller shown in Figure 3 that are identical to components shown in Figure 2 are numbered in Figure 3 with similar reference numerals as were used in Figure 2. Accordingly, automatic transfer switch controller includes power input section 48 that includes transformers 302 and 304 electrically coupled to utility source 12 and generator source 14, respectively. Transformers 302 and 304 are electrically coupled to a voltage sense signal conditioning circuit 306 that includes a low pass filter 308. The output of voltage sense signal conditioning circuit 306 is communicatively coupled to an analog-to-digital converter (A/D) input 310 of

microprocessor 42. In an alternative embodiment, A/D 310 may be a stand alone device mounted to controller 40.

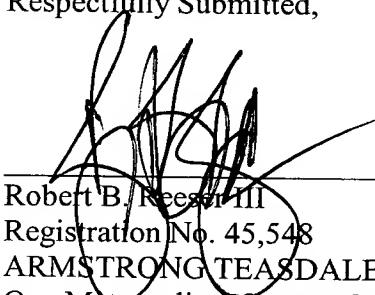
Controller 40 also includes output section 50. In one embodiment, output section 50 includes relay solenoid driver devices 312 coupled to microprocessor 42. In an alternative embodiment, output section 50 includes solid state solenoid driver devices 314 coupled to microprocessor 42.

Configuration section 52 includes a plurality of user selectable jumpers 316 to facilitate controlling the operation of controller 40. User interface 46 includes at least one LED 318 to provide visual indication of, for example, user interface update status.

A plurality of modular I/O boards may be coupled to microprocessor 42 through external connection 320. The plurality of I/O boards may include a generator control board 322, a load shed board 324, and a three phase sense board 326.

Microprocessor 42 includes a plurality of timers 328 that facilitate controlling the operation of controller 40. Timers 328 may include, for example, a generator cool down timer 330, a generator warm-up timer 332, a loss of power delay timer 334, a generator fail-to-start timer 336, a generator crank timer 338, a generator pause timer 340, a generator overload timer 342 and an utility stabilization before switchback timer 344. Microprocessor 42 also includes an exercise clock. Timers 328 and clock 346 may be imbedded in a software segment running on microprocessor 42 and/or occupy registers in microprocessor 42.

Respectfully Submitted,



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